OIPE
SEP 07 2004
PATENT & TRADEMARK OFFICE 2600

09-08-04

AF/2667

IJW

920476-904750

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE THE APPLICATION OF	Examiner: Afsar M. Qureshi
Nigel J. R. King	Group Art Unit: 2667
SERIAL NO.: 09/371,983	Customer Number: 23644
FILED: August 11, 1999	
FOR: Reduced Data Rate Communication System	

hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450," on September 7, 2004
Name of person signing Iris Perez
Signature_____

BRIEF ON APPEAL

Honorable Director of Patents and Trademarks
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This appeal is from the examiner's final office action of May 3, 2004. A timely notice of appeal was submitted to the Patent and Trademark Office by mail on July 6, 2004 with the required fee.

This brief is being submitted in triplicate, along with the fee of $330.00 pursuant to 37 C.F.R. Section 1.17(c).

09/09/2004 JBALINAN 00000037 09371983
01 FC:1402 330.00 OP

(1) **Real Party in Interest**

This application is assigned to Nortel Networks Corporation, which by change of name is now Nortel Networks Limited. The assignment is recorded at Reel 010167, frame 0635.

(2) **Related Appeals and Interferences**

There are no related appeals or interferences.

(3) **Status of Claims**

This application was filed with claims 1 through 10 all of which were cancelled and replaced by new claims 11 to 26. Of the new claims, claims 11 & 20 have been amended twice, claims 13, 14, 16, 22 & 24 amended once and claims 12, 15, 17 to 19, 21, 23, 25 & 26 retained as presented. Consequently, it is the rejection of claims 11 to 26 that is being appealed. The claims as currently pending are set forth in the Appendix.

(4) **Status of Amendments**

No amendments were filed after the final Office Action of May 3, 2004.

(5) **Summary of the Invention**

The present invention relates to a system and method for controlling the bit rate of data calls between a base station and a plurality of subscribers on a limited bandwidth (capacity) link of a communication system, such as, for example a fixed wireless access system. The limited capacity link comprises a number of fixed (i.e. same and non-variable) bit rate channels for providing a fixed bandwidth voice service and a stepwise variable bit rate data service. The stepwise variable bit rate data service is arranged such that a data call can be allocated a number (1 or 2 in the preferred embodiment) of the fixed bit rate channels or a portion (a half or a quarter in the preferred embodiment) of one of the fixed bit rate channels. The stepwise variable bit rate of a data channel can be set prior to establishment of a data call or varied during the call. In either case, the data channel comprises a (stepwise) variable bit rate data channel.

A data call will normally be allocated a maximum allowable number (2 in the preferred embodiment) of fixed bit rate channels provided there is sufficient capacity available. The communications system includes a capacity management module for monitoring the available bandwidth of the fixed bit rate channels comprising the limited capacity link. The capacity management module is arranged such that, if available bandwidth falls below a predetermined threshold, the module implements a reduced bit rate coding scheme only for the variable bit rate data channel while leaving the fixed bit rate (voice service) channels unchanged, i.e. the bit rate of a voice call will never vary or be varied in response to available bandwidth and will always

have a fixed bit rate equal to that of the fixed bit rate channel hosting such call thereby ensuring a consistent, high quality level for voice calls.

The system of the invention therefore provides a simple scheme for enabling data calls to be made on a communications system that is ostensibly designed to handle high quality, fixed bit rate voice calls, whereby the data rate of the data calls can be reduced when available capacity is low thereby ensuring that such data calls do not deny capacity to voice calls and do not compromise the quality of voice calls.

(6) **Issues**

The following issues are presented:

1. The rejection of claims 11, 12, 17 to 21, 25 & 26 under 35 U.S.C. Section 102(e) as being anticipated by Gardner et al (US 5857147);

2. The rejection of claim 13 under 35 U.S.C. Section 103(a) as being un-patentable over Gardner et al (US 5857147) in view of Hsu et al (US 6314112); and

3. The rejection of claims 14 to 16 & 22 to 24 under 35 U.S.C. Section 103(a) as being un-patentable over Gardner et al (US 5857147) in view of Luddy (US 5953346).

(7) **Grouping of Claims**

Claims 11 to 26 can be considered as a group.

(8) **Argument**

Referring to issue 1, Gardner does not disclose a "link comprising a number of fixed bit rate channels for providing a fixed bandwidth voice service between said user station and said base station" as would be understood by a skilled person from the context of the present invention. In Gardner, the bit (data) rate of a speech transmission may be adjusted by a variable rate vocoder (column 2, line 66 to column 3, line 3). A vocoder is a device for compressing speech by extracting parameters that relate to a model of human speech generation (column 2, lines 8 to 10). The purpose of a vocoder therefore is to compress, i.e. reduce the bit rate of, a voice call. Consequently, Gardner cannot be said to be providing a fixed bandwidth voice service unless an unreasonably broad construction is placed on the term "fixed bandwidth". In the present application, the term "fixed bandwidth" will clearly be understood to mean a non-variable bandwidth and therefore the various data rates of 8Kbps, 4Kbps, 4Kbps and 1Kbps (column 6, lines 40 to 45) afforded by the vocoder of Gardner cannot be considered as equivalent

to or the same as "fixed bandwidth" as used to define the voice service provided by the system of the invention. Nor can these different bit rates of Gardner be said to anticipate the feature of the present invention that the limited capacity link comprises a number of fixed bit rate channels. A skilled person would readily understand that the term "fixed" as used in the present invention refers to each of the channels of the link being of the same (and non-variable) bit rate in contrast with Gardner where voice calls can be transmitted at a number of different bit rates.

The applicant would, however, be prepared to amend the term "fixed bit rate channels" to "fixed, same bit rate channels" if the Examiner will accept that this more clearly distinguishes the present invention over the disclosure of Gardner.

Notwithstanding the above, Gardner does not teach that "if available bandwidth falls below a pre-determined threshold, the capacity management module is arranged to implement a reduced bit rate coding scheme for the variable bit rate data channel whilst leaving the fixed bit rate channels unchanged" (this application, claim 11). As shown clearly in Gardner figures 5, 6, 7, 9 and 10, Gardner teaches that all messages or users are treated equally and that if usage falls above or below a threshold level the transmission rate of every message is modified in an identical manner. This is clearly distinct from the present invention as defined by the amended claim 11 where the voice channels and data channels are treated differently in that a reduced bit rate coding scheme is used on the data channel and the fixed bit rate channels are left unchanged. Consequently the present invention as defined by independent claims 11 and 20 is clearly not anticipated by Gardner.

Even if it can be argued that Gardner teaches that the vocoder can optionally be instructed to perform variable rate vocoding on selected channels while leaving other channels unchanged, this does not anticipate the feature of the present invention of "leaving the fixed bit rate channels unchanged". In the present invention, it is clear that the fixed rate channels comprise the voice call channels and it is these channels that are left unchanged such that voice calls are always transmitted at the same, fixed bandwidth thereby ensuring a consistent high level of quality for said calls despite the presence of data calls on other fixed rate channels or parts of such channels. In the present invention, the bit rate of voice calls is never varied in response to link capacity. In contrast, in Gardner, voice calls can be transmitted at a number of different bit rates, said rates being chosen in response to capacity constraints, i.e. to ensure that each user uses the same fraction of communication resource in order to maximise the quality of service to all users (column 7, lines 37 to 40). It should be noted that this is a tacit admission by Gardner that the

quality of voice calls is not consistent, said quality being dependent on the data rate allocated to a voice call as its equal fraction of available resources. Where the number of users is high, the allocated bit rate for a voice call will be low and thus the quality of service will be reduced.

Consequently, the present invention goes against the teaching of Gardner and is not only novel in view of the disclosure of Gardner but cannot be said to have been obvious, either.

The rejection of all other currently pending claims and, in particular, claims 13, 14 to 16 & 22 to 24 as addressed in issues 2 and 3 above is moot in view of the foregoing. However, for the sake of completeness, applicant comments on Hsu and Luddy as referred to in issues 2 and 3 as follows.

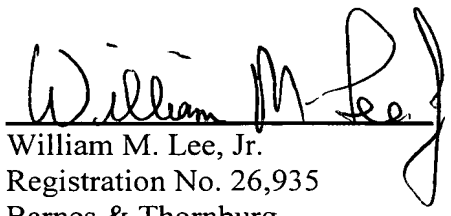
Luddy (US 5953346) describes "a CDMA communication system" (Luddy, abstract). Luddy does teach to distinguish between voice traffic and data traffic but does not teach that "if available bandwidth falls below a pre-determined threshold the capacity management module is arranged to implement a reduced bit rate coding scheme for the variable bit rate data channel" (this application, claim 11). Instead Luddy teaches use of a low data rate for voice and a high data rate for data (Luddy, column 3, lines 61-65). In fact, Luddy teaches away from the present invention by teaching that on receipt of data the data rate of transmission is increased (Luddy, column 4, lines 26-40).

Hsu (US 6314112) relates to a "method and apparatus for network transmission capacity enhancement" (Hsu, title). Like Luddy, Hsu also differentiates between voice and data calls, however Hsu does not teach that "if available bandwidth falls below a pre-determined threshold the capacity management module is arranged to implement a reduced bit rate coding scheme for the variable bit rate data channel" (this application, claim 11). Instead Hsu teaches that the voice traffic can be compressed (Hsu, column 2, lines 33-38 and column 3, lines 59-65) which is teaching away from the present invention.

It is respectfully submitted that the continued rejection of claims 11 to 26 as addressed above cannot be justified and that these claims define a novel and patentable invention in view of the prior art of record. Reversal of the rejection of said claims is therefore requested.

September 7, 2004

Respectfully submitted,



William M. Lee, Jr.
Registration No. 26,935
Barnes & Thornburg
P.O. Box 2786
Chicago, Illinois 60690-2786
(312) 214-4800
(312) 759-5646 (fax)

APPENDIX

Claims

1-10. (Cancelled)

11. A communication system comprising:

a user station capable of communicating with a base station over a limited capacity link, the link comprising a number of fixed bit rate channels for providing a fixed bandwidth voice service between said user station and said base station and a separate variable bit rate data channel for providing a data service between said user station and said base station; and

a capacity management module for monitoring available bandwidth of said link channels, wherein, if available bandwidth falls below a predetermined threshold, the capacity management module is arranged to implement a reduced bit rate coding scheme for the variable bit rate data channel whilst leaving the fixed bit rate channels unchanged.

12. A communications system according to claim 11, wherein the capacity management module implements the reduced bit rate coding scheme for the variable bit rate data channel in a progressive manner dependent on available bandwidth.

13. A communications system according to claim 12, wherein the fixed bit rate channels each have a bit rate of 32kb/s, and the bit rate coding scheme for the data channel comprises a bit rate up to one of 64kb/s, 32kb/s 16kb/s and 8kb/s.

14. A communications system according to claim 11, wherein the capacity management module is arranged to monitor fixed bandwidth transmissions on said number of fixed bit rate channels and, on detection of a data tone in a fixed bandwidth transmission, to switch said number of fixed bit rate channels to a variable bit rate data channel having a maximum bit rate dependent on what portion of said link is allocated to comprise said variable data rate channel.

15. A communications system according to claim 14, wherein the capacity management module is arranged to select a bit rate coding scheme for the variable bit rate data channel on detection of a data tone in a fixed bandwidth transmission and to communicate said selected coding scheme to the base station.

16. A communications system according to claim 14, wherein the capacity management module is arranged, prior to selecting a coding scheme for the variable bit rate channel, to check available bandwidth of said link and, if there is not sufficient available bandwidth to provide a variable bit rate channel having a highest permissible data rate, then the capacity management

module selects a bit rate coding scheme for the data channel that is the highest permissible data rate determined from current available bandwidth on said link.

17. A communications system according to claim 11, wherein the capacity management module is arranged to effect the same bit rate coding scheme for the variable bit rate channel in both an uplink direction and a downlink direction.

18. A communications system according to claim 11, wherein the number of fixed bit rate channels are voice band channels.

19. A communications system according to claim 11, wherein said system is a fixed wireless access system (FWA).

20. A method of operating a communications system in which a user station communicates with a base station over a limited capacity link, said method comprising the steps of:

providing a number of fixed bit rate channels between said user station and base stations to provide a fixed bandwidth voice service therebetween;

providing a separate variable bit rate data channel between said user station and base stations to provide a data service therebetween; and

providing a capacity management module for monitoring available bandwidth of said link, wherein, if available bandwidth falls below a predetermined threshold, the capacity management module implements a reduced bit rate coding scheme for said variable bit rate data channel whilst leaving the fixed bit rate channels unchanged.

21. A method according to claim 20, wherein the capacity management module implements the reduced bit rate coding scheme for the variable bit rate data channel in a progressive manner dependent on available bandwidth.

22. A method according to claim 21, wherein it includes the step of monitoring fixed bandwidth transmissions on said number of fixed bit rate channels and, on detection of a data tone in a fixed bandwidth transmission, switching said number of fixed bit rate channels to a variable bit rate data channel having a maximum bit rate dependent on what portion of said link is allocated to comprise said variable data rate channel.

23. A method according to claim 22, wherein it includes the step of selecting a bit rate coding scheme for the variable bit rate data channel on detection of a data tone in a fixed bandwidth transmission and communicating said selected coding scheme to the base station.

24. A method according to claim 22, wherein it includes, prior to selecting a coding scheme for the variable bit rate channel, the step of checking available bandwidth of said link and, if

there is not sufficient available bandwidth to provide a variable bit rate channel having a highest permissible data rate, then selecting a bit rate coding scheme for the data channel that is the highest permissible data rate determined from current available bandwidth on said link.

25. A method according to claim 20, wherein the same bit rate coding scheme is effected for the variable bit rate channel in both an uplink direction and a downlink direction.

26. A method according to claim 20, wherein the method comprises operating a fixed wireless access (FWA) communications system.